Modern AI Pro:
Bootcamp 35

Intro class

Summary of **today's** class

01

Introducing ourselves

We will get to know each other.

02

The AI Journey

A quick intro to what is happening in AI.

03

Course outline.

High level summary of what we will learn.

04

Pre-requisites

Let's install the necessary software and be ready with the tools.
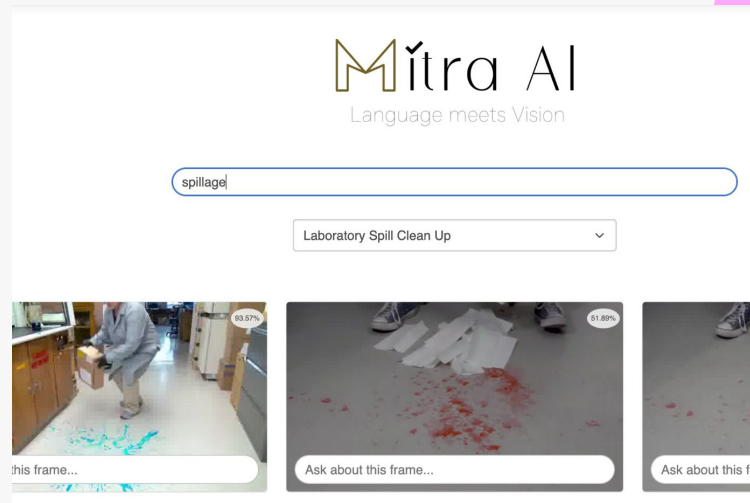
Your **instructors**

Dr. Balaji Viswanathan

Arvind Nagaraj

Our Creations

What if your shopping cart is more than a shopping cart?

Far more than a shopping cart, it is a shopping robot
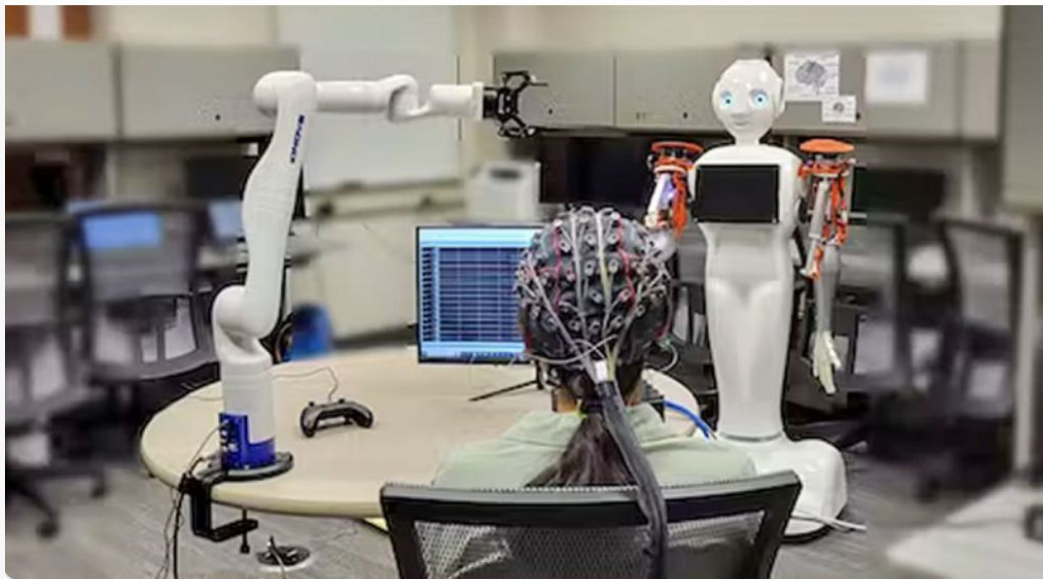
UMBC Department of Computer Science and El...

919 followers

2mo · 🌐

UMBC CSEE professor **Ramana Vinjamuri** is developing new ways for humans and robots to collaborate and carry out tasks together using brain-computer interfaces, which use brain signals to communicate between robots and humans. **#AI #robotics #robots #brain #UMBCengineering**

https://lnkd.in/ehxm9srH
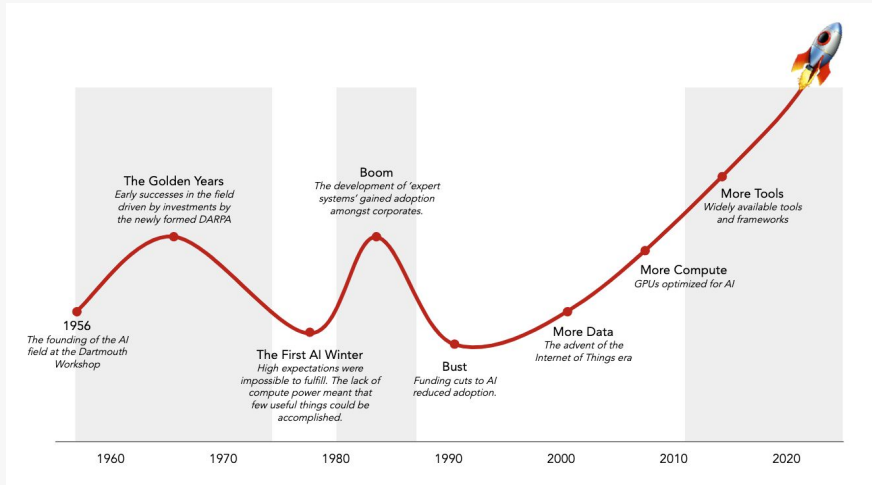
Among the first in the world to get access to GPT 3

Post

Balaji Viswanathan
@balajivis

Thanks @gdb for the access to GPT-3. @nagaraj_arvind and I will be working on the robotics implementation of it.

9:39 PM · Jul 23, 2020

The AI **journey!**

The AI has seen many booms and many busts. It has seen bright summers and dark winters. Let's journey through them.

This time we believe it is different!

The Golden Years
Early successes in the field driven by investments by the newly formed DARPA

Boom
The development of 'expert systems' gained adoption amongst corporates.

More Tools
Widely available tools and frameworks

More Compute
GPUs optimized for AI

1956
The founding of the AI field at the Dartmouth Workshop

The First AI Winter
High expectations were impossible to fulfill. The lack of compute power meant that few useful things could be accomplished.

Bust
Funding cuts to AI reduced adoption.

More Data
The advent of the Internet of Things era

1960   1970   1980   1990   2000   2010   2020

Fields related to AI

Computer Vision

Allowing machines to understand visual data

NLP

Allowing machines to read and write text

RL and Robotics

Allowing agents to act inside environments

Towards **AGI**: Mind blowing **applications** of Modern AI.

Levels of AGI

Levels of AGI

Performance (rows) x Generality (columns)	Narrow *clearly scoped task or set of tasks*	General *wide range of non-physical tasks, including metacognitive abilities like learning new skills*
Level 0: No AI	**Narrow Non-AI** calculator software; compiler	**General Non-AI** human-in-the-loop computing, e.g., Amazon Mechanical Turk
Level 1: Emerging *equal to or somewhat better than an unskilled human*	**Emerging Narrow AI** GOFAI (Boden, 2014); simple rule-based systems, e.g., SHRDLU (Winograd, 1971)	**Emerging AGI** ChatGPT (OpenAI, 2023), Bard (Anil et al., 2023), Llama 2 (Touvron et al., 2023), Gemini (Pichai and Hassabis, 2023)
Level 2: Competent *at least 50th percentile of skilled adults*	**Competent Narrow AI** toxicity detectors such as Jigsaw (Das et al., 2022); Smart Speakers such as Siri (Apple), Alexa (Amazon), or Google Assistant (Google); VQA systems such as PaLI (Chen et al., 2023); Watson (IBM); SOTA LLMs for a subset of tasks (e.g., short essay writing, simple coding)	**Competent AGI** not yet achieved
Level 3: Expert *at least 90th percentile of skilled adults*	**Expert Narrow AI** spelling & grammar checkers such as Grammarly (Grammarly, 2023); generative image models such as Imagen (Saharia et al., 2022) or Dall-E 2 (Ramesh et al., 2022)	**Expert AGI** not yet achieved
Level 4: Virtuoso *at least 99th percentile of skilled adults*	**Virtuoso Narrow AI** Deep Blue (Campbell et al., 2002), AlphaGo (Silver et al., 2016, 2017)	**Virtuoso AGI** not yet achieved
Level 5: Superhuman *outperforms 100% of humans*	**Superhuman Narrow AI** AlphaFold (Jumper et al., 2021; Varadi et al., 2021), AlphaZero (Silver et al., 2018), StockFish (Stockfish, 2023)	**Artificial Superintelligence (ASI)** not yet achieved

The key **trends** in AI

Multimodal LLM.

Involves processing and integrating multiple data types - text, images, and audio, for richer understanding and output.
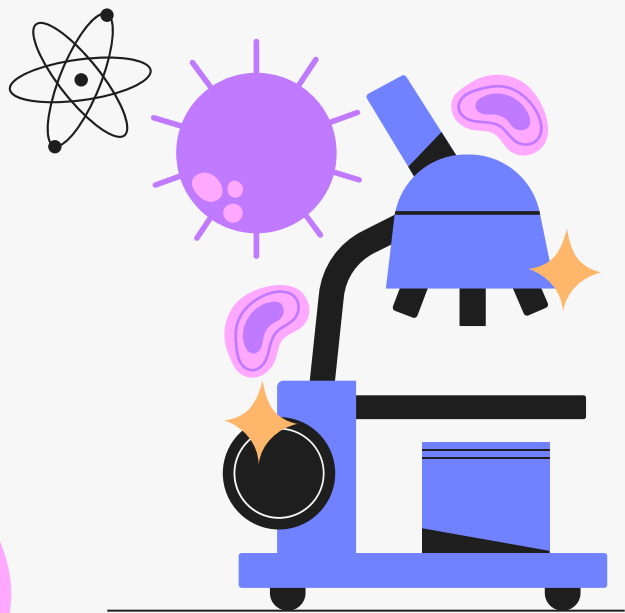
Smaller, Agile LLM.

These are compact AI models, fine-tuned to cater to specific industry verticals, offering precise and efficient solutions.

Agentic platforms.

Expand LLMs for variety of actions.

The **goal** of this program!

Be an insider: Get very comfortable using Modern AI tools including LLMs for your career progress.

20-hour AI Challenge

Starting from 0 to deploying software
1. Get to production in a weekend.
2. Python knowledge is required.
3. This session is intensive.

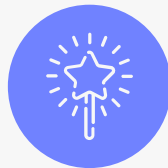Theory and Practice of AI.
Focused on Enterprise deployment.

What can **you do** post this course?

Implement NNs in your current job

Use Modern AI across multiple business workflows.

Data science careers.

Prepare for real world jobs from Data Science to ML development

Expand and customize LLMs.

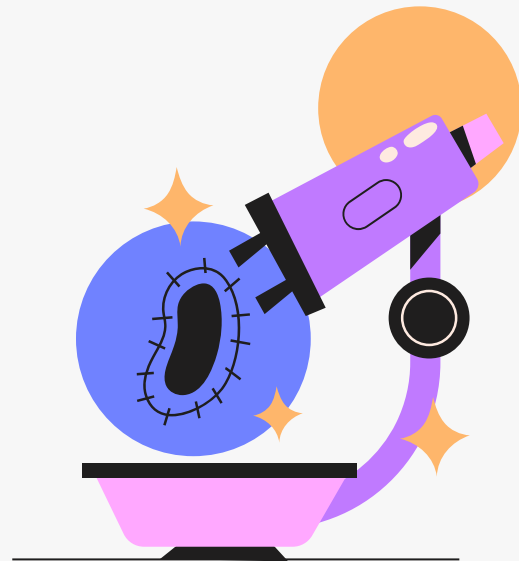Pick up smaller LLMs and related tools that can fit your application.

Build cool applications.

On the web or mobile that harness the power of deep learning.

Let me **show** what we can do!

We will use a Jupyter notebook for this and show LLMs in action.

The projects you need to **do.**

To get the best experience out of the course.

Introduce yourself

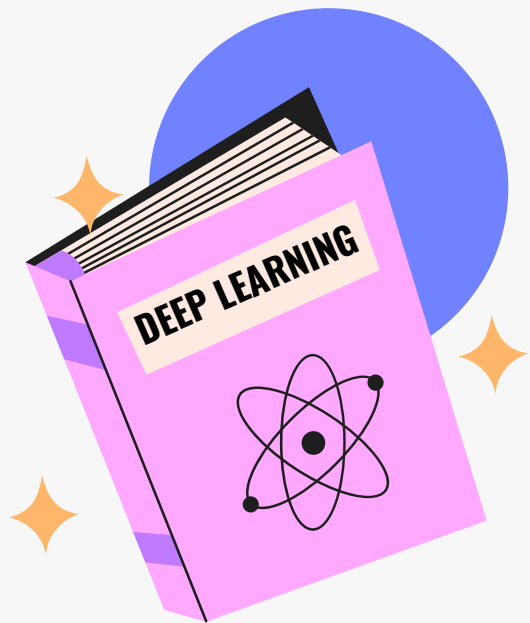1. Name
2. Location
3. What you do?
4. Your objectives.

Questions!

Do you have any questions?

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arvind@mitrarobot.com

Discord community: Mitra AI